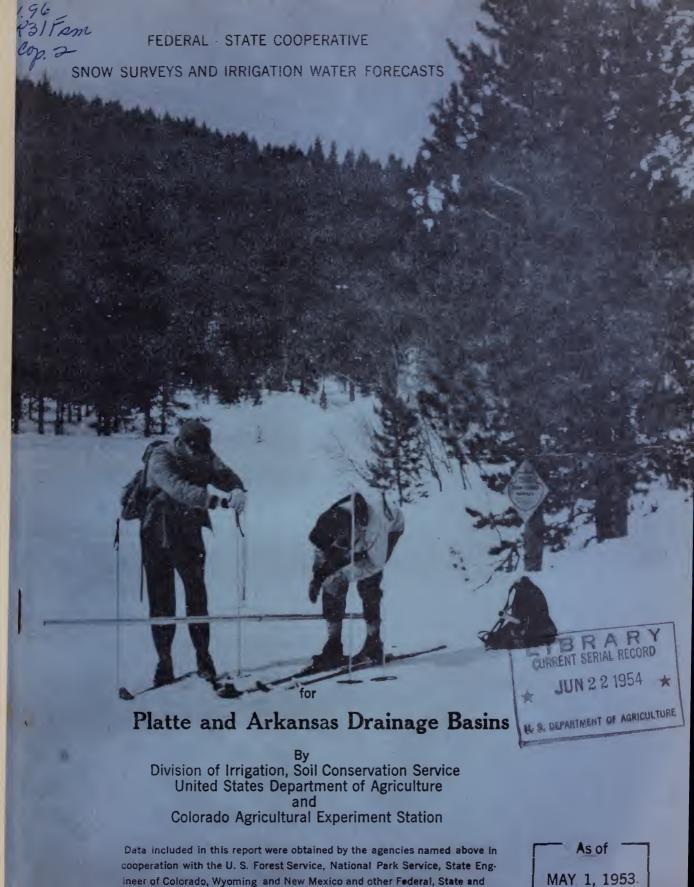
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local organizations.

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in this bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

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Hydrologist in Charge River Forecast Center U. S. Weather Bureau 712 Federal Office Building Kansas City 6, Missouri

FEDERAL-STATE COOPERATIVE SNOW SURVEYS AND IRRIGATION WATER SUPPLY FORECASTS

For

PLATTE-ARKANSAS RIVER BASINS

May 1, 1953

Report Prepared

by
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General Series Paper No. 547
Colorado Agricultural Experiment Station

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WATER SUPPLY OUTLOOK PLATTE-ARKANSAS DRAINAGE BASIN May 1, 1953

Seasonal snow accumulation on the headwaters of the North and South Platte and Arkansas Rivers varies from 80 to 115 percent of normal as of May 1. The water supply outlook has improved slightly on the South Platte during April but no material change was noted for the North Platte and Arkansas Rivers. Stream flow during the 1953 snow-melt season will probably be less than indicated by snow measurements because of extremely dry soil under the snow in mountain areas. Snow at medium and lower elevations is much less than normal. Seasonal runoff of all streams will be less than for 1952. Soil moisture conditions in irrigated areas are fair to good along the South Platte, and fair to poor on the North Platte and Arkansas Rivers. Stream flow is below average.

CHEYENNE RIVER

Snow cover in the Black Hills of South Dakota was above normal on April 1 and some snow remains at higher elevations. Precipitation was deficient in valley areas during the winter months. Recent precipitation has been above average and surface soil moisture is reported as good. Storage in Belle Fourche reservoir is now 77,000 acre-feet as compared to 143,000 a year ago and well below average. However, stream flow is above normal.

NORTH PLATTE RIVER

The water supply outlook for the North Platte is definitely in contrast to a year ago. The snow water content is about 80 percent of normal as compared with 165 percent on May 1, 1952. The seasonal runoff of the North Platte into Seminoe Reservoir will be reduced due to dry mountain soils. As in other areas, precipitation during the late fall and winter months was extremely deficient. The irrigation water supply is reasonably assured below Pathfinder reservoir due to high carry-over storage made available by relatively heavy stream flow for the past four years and especially 1952. Total storage in the four major reservoirs is now 1,640,000 acre-feet, about 200,000 less than on May 1, 1952. A limiting factor in irrigation water supply is that only about 500,000 acre-feet are available for use by older irrigated districts. The total of water stored and expected inflow may not be quite adequate to meet irrigation water demands. Soil moisture conditions are reported as fair to poor in irrigated areas with some improvement in western Nebraska. Stream flow is much below normal and probably will remain below normal until the deficiency in mountain soil moisture has been replaced.

LIVE BUILDING

THE LAND TO BE

Snow cover on the Laramie River is 85 percent of normal with April-September flow at the state line expected to be 75 percent of normal. Soil moisture is dry in the Wheatland irrigated areas with range and crop conditions reported as fair. Stream flow is far below normal. Storage in Wheatland Reservoir is about 50 percent of that stored on this date in 1952.

SOUTH PLATTE RIVER

Although there was some improvement in water supply outlook for the South Platte and its tributaries during April, summer stream flow is expected to be below average. For May 1 the remaining snow water contents range from about 90 to 115 percent of normal. Mountain soils are still very dry with no moisture penetration below 20 inches into the soil and an average of about 12 inches from snow melt. Snow water below 9000 feet in elevation will be practically all taken up by dry soil. Some water shortage may be expected in irrigated districts near the mountains where supplemental water from the Colorado-Big Thompson project is not available. Stream flow is below normal near the mountains but normal or above below Kersey. Reservoir storage is very close to a year ago and the past ten-year average. Reservoirs along the lower South Platte are near capacity. Soil moisture conditions are fair to good near Denver and North and good in the Fort Morgan, Sterling and Julesburg areas.

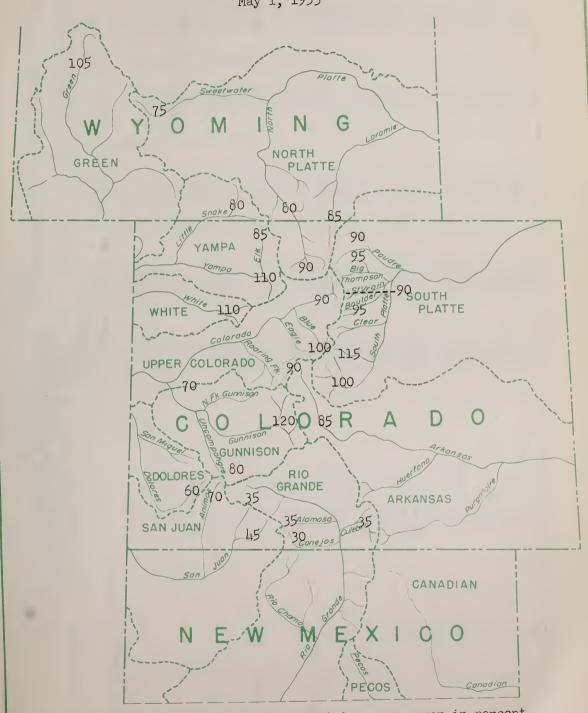
ARKANSAS RIVER

The irrigation water supply outlook for the Arkansas River valley is definitely below average for 1953. Summer stream flow is expected to be about 75 percent of normal at Salida, slightly less at Pueblo and declining further downstream. Precipitation at valley elevations has been deficient for several months. Soil moisture conditions are reported as fair at Salida but poor from Pueblo east. Except for Twin Lakes reservoir there is practically no irrigation water storage in the Arkansas valley. The combination of deficient precipitation, low snow cover and lack of reservoir storage add up to an unfavorable water supply outlook for 1953.

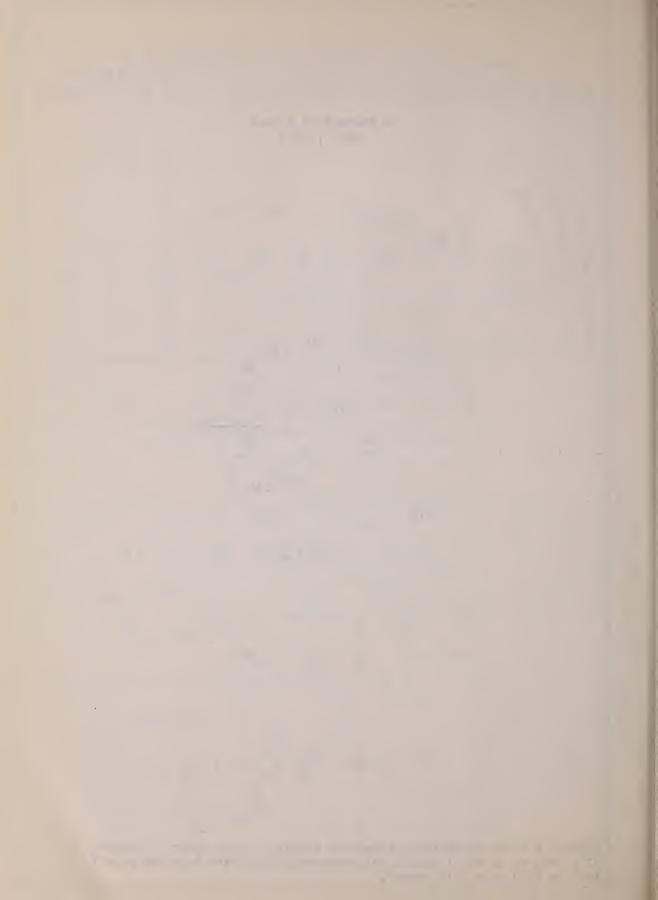
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 WATER CONTENT OF SNOW ON THE WATERSHEDS OF PLATTE, ARKANSAS, UPPER COLORADO AND RIO GRANDE BASINS BASED ON SNOW SURVEYS MADE APPROXIMATELY FIRST DAY OF MONTH

In Percent of Normal May 1, 1953



Note: The above percentages represent remaining snow cover in percent of normal as of May 1 and do not necessarily indicate expected runoff for the 1953 snow melt season.



STATUS OF RESERVOIR STORAGE PLATTE-ARKANSAS BASIN, May 1, 1953

BASTN AND STREAM	RESERVOIR	USABLE	THOUSANDS	NDS ACRE FEET	T IN STORAGE	E About May	
		(Thous.		7	1		year A
		A.F.)	1953	1952	1951	1950	1943-1953
MISSOURI RIVER Pondre River	Windsor	18.6	11.8	13.7	11.7	11.8	13•3
н н	Cache la Poudre	9.5	8,3	6.7	6.2	8,1	8.0
= =	Fossil Creek	11.6	8.9	10,14	7.1	9.6	9.1
=	Terry Lake	8.2	7.0	6.2	4.2	4.5	2.5
= =	Halligan	4.9	ر. س	2.1	0.0	0.0	1.9
=	Chamber's Lake	ထ္ဆ	2.1	2.8	1.9	2.8	2.7
=	Cobb Lake	34,3	11,1	7.0	6•11	11.3	6.5
=	Black Hollow	ဝ တိ	4.1	3.6	2.0	8047	3.6
Big Thompson River	Lake Loveland	14.3		11.7	2.7	N N	7.0
	Boya Lake	0°77		23.0	7.9	26,1	23,1
=======================================	Lone Tree	9.2		8.9	8.7	8,2	7.8
= = =	Mariano	5.4		77. S	٥.4	1.7	3.2
St. Vrain River	Union	12.7	9.1	12.3	3.4	9.1	9.8
South Platte River	Eleven Mile	81.9	81.9	81.9	81.9	81.9	80.9
# # # # # # # # # # # # # # # # # # #	Cheeseman	79.0	57.0	42.3.	26.1	56.4	7.09
= =====================================	Marston	18.9	14.5	15.0	17.1	15.4	15.6
**	Barr Lake	32.2	24,1	28.5	25.0	25,3	27.0
=======================================	Milton	24.4	14.8	19.3	10.2	17.6	16.4
11	Standley	18.5	12.7	17.4	9.6	11.0	14,03
=======================================	Marshall	10,3	2.7	7.2	3.7	2,1	4.3
= :	Antero	33.0	10.2	8.6	20.3	21.1	19.2
=======================================	Horse Creek	20°6	13,3	14.6	10,9	15.2	1207
=======================================	Riverside	57.5	59,3	59.5	146.7	56.8	55.9
=======================================	Empire	37.7	34.1	33.0	25.4	33.3	32.9
= =	Jackson Lake	35.4	35.4	35.4	34.7	34.4	34.7
= =	Prewitt	32.8	25.8	28.4	21.2	28.4	27.8
= :	Point of Rocks	70.0	9.69	69.3		68.9	9•99
	Julesburg	28.2	22.4	21.7	22.2	21.7	22.2

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	ELV.				

(Cont.)	THOUSANI
RESERVOIR STORAGE (I IISABIE.

	AEGH	ONAGE	(online)	TOWN TO AND THE PERSON	to a domo		
		USABLE	L'HOUSANDS	THOUSANDS ACRE FROT IN STURAGE About May	STORAGE AD	out May 1	
BASIN AND STREAM	RESERVOIR	CAPACITY					10-year Avg.*
		(Thous.A.F.)	1953	1952	1951		1943-1952
North Platte River	Kingsley	2180.0	1826.0	1820.0	1729.5	1838.5	1396.7
n ::	Sutherland	185.0	0.1/9	71.5	71.8	10.4	43.3
= =	Minatare	60.8	52.4	9.94	9°24	53.0	47.7
2 21 22	Alcova	190.0	179.7	185,2	163.0	179.2	146.8
= =	Seminoe	1025,0	553.7	601.5	6.945	8,109	462.0
	Guernsey	0.94	7.7	49.2	7.6	18.9	30.1
= =	Pathfinder	1045.5	892.9	1013.4	1017.2	988.4	619.7
Laramie River	Wheatland	70.4	36.0	6.92	52.0	54.9	56•3
ARKANSAS RIVER							
Arkansas River	Twin Lakes	57.9	25.7	15.2	11.3	23.7	21.9
=======================================	Sugar Loaf	17.4	2.5	7.	گ	6.5	7.8
=======================================	Cle ar Creek	11.4	2.2	1.3	0 ~	27	5.3
==	Meredith	6.14	0.0	0.0	000	0.0	2.0
=======================================	Horse Creek	26.9	0.0	0.0	0.0	5.2	11,1
= =====================================	Adobe Creek	9*19	0.0	7.9	0.0	22.0	31.7
=======================================	Cucharas	0.04	0.0	1.1	2.7	2.2	5.4
==	Two Buttes	6.04	i i	27.4	28.8	14.0	10,2
=======================================	John Martin	655.0	0.0	33.7	57.8	100.9	67.5
=======================================	Great Plains	150.0	1	22.5	25.5	63.6	76.2
Purgatoire River	Model	15.0	1.0	0.2	0.0	0.2	3,3
CHEYENNE RIVER							
Cheyenne River	Belle Fourche	198.1	9.92	143.3	103.9	141.2	146.1
	Angostura	160.0	116.5	104.0	34.0	17.0	*
COLORADO-BIG THOMPSON							
Blue River	Green Mt.	146.9	63.2	54.8	145.7	78.0	54.1
Colorado River	Granby	167.5	426.0	290.0	115.9	1	!
Poudre River	Horsetooth	143.5	128.0	75.1	5.0	1	1
*Some for shorter periods.							

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PLATTE-ARKANSAS DRAINAGE BASINS

SUPPLARY OF MAY 1 SHOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

	Smorr Inte	Sport Water Content in Inches	nr in	Thelips	NO. OI	Density	LYSS WO	Percent of
1953 -	MOTTO M	Trei con	THE OWNER OF THE OWNER OWNE	15-yr.	in	1953		Cello of
	1953	1952	1951	Avg. *	Avg. * Average	Percent	1952	15 yr. Avg.*
0.0	9.9	20°7	13.7	14,1	m'	37	64	70
3,5	12.7	21,12	16.9	15°7	H J	 38 	09	81
	0,11	16,9	18,4	1300	7	33	65	857
15.8	14.5	6.8	4.9	4,4	Ŋ	28	99	102
	10,01	14.9	16.9	12,0	7	34	72	89
	13.5	17.0	20°1	14,1	m	36	19	96
	7.5	12,2	12.6	7.6	Μ	35	61	80
	11,3	18.2	18,1	12,2	3	35	62	93.
	15.9	18.7	20.2	13.9	ς,	32	85	177
27.6	8.8	13.9	11.6	10,3	6	32	63	85
			7		•	,	•	(
	12.9	19,3	18.5	1/100	9	36	29	ထည
	5.7	12,4	8.0	0 0	m	25	947	71
35.2	9.1	15.9	15.0	10.7	m	56	57	87
0.0	17.5	22.4	24.4	17.2	7	33	3/	102

DAT A* TION A ۲ PRECIPI

	Control of the Contro				
		Precipitation	Departure	Precipitation	Departure
WA TERSHED	STATE	October 1 to	from		from
		April 30	Normal	April	Normal
		Inches	Inches	Inches	Inches
North Platte	Wyoming	5,23	86. [1	21-1	85.01
South Platte	Colorado	5.01	1.89	7.73	90.0
Arkansas	Colorado	4.87	-2,02	100	0,0
*Average as asset	Average goldentod high of ore tion etat	520		british and the second of the	7,5
	1				

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PLATTE-ARKANSAS DRAINAGE BASINS STREAM FLOW FORECASTS, May 1, 1953

			April Sent.	April Sent. Incl. Streamflow Acres Reat	We Hoot
Basin and Stream	Forecast	1942	ופרן	1950	10-year Avgo
		ナノノト	ナノノナ	0//-	エンサエーエンンの
NORTH PLATTE					
Sweetwater at Alcova	40,000		74,000	162,000	81,000
North Platte at Saratoga	425,000	1,053,000	710,000	000,189	979
Medicine Bow near Hanna	65,000		91,000	000 6 716	116,000
Laramie at Jelm	70,000	124,000	126,000	000,92	000°716
Laramie at Lookout	65,000		117,000	000,79	84,000
SOUTH PLATTE					
Poudre at Canon	175,000	256,000	283,000	186,000	250,000
Big Thompson at Drake	*000,008	154,000	190,000	104,000	112,000
Saint Vrain at Lyons	55,000	121,000	108,000	59,000	88,000
Boulder at Orodell	40,000		70,000	39,000	53,000
Clear Creek at Golden	120,000		157,000	103,000	145,000
ARKANSAS	~~~				
Arkansas at Salida	250,000	533,000	384,000	305,000	327,000
Arkansas at Pueblo	250,000		290,000	249,000	374,000
Cucharas at La Veta	8,000		2,000	2,500	18,000
Purgatoire at Trinidad	20,000		12,000	18,500	000,89
*Excluding Diversions					

	10400		Output	9.74		100,000		ton-pos	T14*100	er Er		Time and	THE STATE OF THE S	186,731	00,00	8.	Total State of the	Merchant of the St. of The St.
	1	0.00				100 100	Total Committee	9	05,20			111,000	12.4.17	100	000,000	000,400	Tore	THE STATE OF
	0.000	5.	- 1446	and the		1114111		Total	1107,000	101		2007-\$100	70.442	Or Jo	True non	100 000	TAG	West Control
				201600				3577.000	(Mary Street)	io phil			Tol' use		100,110,11		1967	
	1	į	-	5 10		25/20		Colum.		***		10000		•	000,000			
But and the same	September 10 court				210 miles			Hattle Steam of Light	STATE OF THE PARTY	poste of Some	Steel artists	DRAWFO IN JUSTICIE.	parents of here			Deservoir Board	SOUTH NO. 3 (No. 1)	

Comment of the party and the p

PLATTE-ARKANSAS RIVERS SNOW SURVEYS
May 1, 1953

			May 1	, 1953					
					Snow (Cover Me	easuren		
Drainage Basin	No.	,	Date	Snow	Water	Conter	nt	Past F	ecord
and	and	Elev.	of	Depth				Yrs.	Av.Water
Snow Course	State		Survey	-	1953	1952	1951	Record	Content
				In.	In.	In.	In.		In.
		P	LATTE R						
S.EETWATER RIVER									
Grannier Meadows	29 Wyo.	9000	5/1	31.0	9.7	20.1	12.5	16	14.7
South Pass*	47 "	9000		33.0	10.2	20.7	14.9	12	13.5
Larsen Creek	57 "		4/30	0.0	0.0	10.0		3	13.6
Average for d			,, -	32.0	9.9	20.4	13.7		14,1
NO. PLATTE RIVER									
Cameron Pass	1 Colo.	10300	1/30	60.0	21.8	29.2	26.5	17	24.2
Park View	7 11	9200	4/30	21.9	6.6	11.4	8.9	17	7.4
Columbine Lodge	8 11	9300	4/30 5/2	61.5	25.9	30.5	28.8	17	20.5
Willow Cr. Pass*	62 "	9500	5/1	32.4	8.3	20.6	14.8	15	13.5
Northgate	136 "		4/29	6.1	1.8	5.4	4.2	3	3.6
Bottle Creek	7 Wyo.		4/27	24.8	9.9	21.1	12.8	17	13.3
Webber Spring	8 11		4/27	34.0	13.7	27.9	17.1	17	17.5
Old Battle	9 11		4/27	63.3	27.2	50.0	34.9	17	34.3
N.French Creek	37 11	10200		62.4	26.3	35.5	38.3	15	33.3
Ryan Park	39 "		4/30	13.5	3.9	14.0	8.4		7.6
Spring Creek	67 11		4/27	28.1	12.2	22.5	14.9	1 4	18.0
Albany	68 11	9400		26.7	10.4	15.6	17.0	1 4	13.9
La Bonte	69 "	8450		0.0	0.0	0.0	0.0	1 4	0.0
Boxelder	70 "		4/25	23.1	8.3	7.4	4.9	3	5.9
Pearl	71 "	8900			ر	3.5	1.2	3 2	7.7
Average for d		0,00		33.5	12.7	21.1	16.9		15.7
LARAMIE RIVER									
Deadman Hill	50 Colo.	10200		47.7	12.8	19.9	22.7	14	17.4
Roach	88 "	9800	15/1	47.8	15.9	27.2	24.6	12	21.1
McIntyre	1111 "	9100				13.5	12.8	4	12.1
Brooklyn Lake	3 Wyo	10200	5/1	69.3	27.0	33.6	36.9	17	25.8
Fox Park	11 "	9200	5/1	5.2	1.8	6.4	10.0	17	5.7
Pole Mtn. #2*	34 "		4/30	0.0	0.0	2.6	1.1	16	2.3
Libby Lodge	35 "	6700		27.0	8.5	13.4	15.8	17	6.2
Hairpin Turn	36 "	9500		38.3	11.7	16.4	19.0	17	11.6
Albany	68 "	9400	5/1	28.7	10.4	15.6	17.0	1 4	13.9
Average for d	rainage			33.0	11.0	16.9	18.4		13.0
Cameron Pass	1 Colo.	10300	11/30	60.0	21.8	29.2	21.3	17	24.2
Chambers Lake	2 "	9000		8.2	3.0	5.6	10.0	17	4.2
Big South	3 11	8600		0.8	0.3	0.8	1.5	17	0.6
Deadman Hill	50 "	10200		47.7	12.8	19.9	22.7	14	17.4
Lake Irene*	65 "	10600		59.9	23.1	28.2	34.5	15	24.5
Hour Glass Lake	68 "		4/30	27.6	7.7	12.2	14.6	13	8.2
Red Feather	128 "	9000		14.6	5.9	8.6	8.4	1 4	5.1
Lost Lake	156 "	9300		26.9	7.6	14.1	13.0	2	J.
Average for d		1 7500	2/2	31.3	10.7	14.9	16.9		12.0
11.12.480 201 u				7-07	T-0 f		1	-	12.00

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PLATTE-ARKANSAS RIVERS SHOW SURVEYS

May 1, 1953

			ray.	±, ±7))	Snow	Course	Measure	mon+c	
Drainage Basin	No.	1	Date	Snow		Conter			Record
and	and	Elev.		Depth	Wa 001	T COLLOCAL	1	Yr.	Av. Water
Snow Course	State	TTC 4.	Survey		1953	1952	1951	Rec.	Content
BIG THOMPSON RIVI		-		In.	In.	In.	In.		Ina
Lake Irene*	65 Colo.	10600	4/26	59.9	23.1	28.2	34.5	15	24.5
Hidden Valley	95 "	9550	4/29	41.3	13.6	17.7	18.3	12	13.8
Deer Ridge	115 "	9050	4/29	10.6	3.8	5.0	7.4	4	4.1
Longs Peak	148 "	10500		36.5	11.4	19.7	19.0	2	
Average for	·		,,,	37.3	13.5	17.0	20.1		14,1
ST. VRAIN RIVER									
Wild Basin	41 "	10000		39.9	15.0	24.4	22.4	17	14.7
Copeland Lake	116 "		4/30	5.5	2.3	4.9	4.9	4	2.8
Ward	134 "	9500	5/2	18.3	5.2	7.4	10.5	3	10,6
Average for	drainage			21.2	7.5	12.2	12.6		9.4
BOULDER CREEK									
E.Port.Moffat T.	5 Colo.		4/30	12.0	3.5	5.5	3.8	17	2.1
University Camp		10300		65.1	25.3	36.7	36.6	14	23.7
Moffat	133 "		4/30	20.4	5.0	12.5	14.0	3	10.8
Bould er Falls	162 "	10000	4/29	40.5	17.0	19.8		1	
Average for	drainage			32.5	11.3	18.2	18.1		12.2
CLEAR CREEK	(n	20600	- 10	~- a	-00				
Loveland Pass	61 "	10600	5/2	57.0	18.8	20.0	22.4	17	14.1
Grizzly Peak*	97 "	11250	5/2	62.8	20.7	26.8	27.7	11	20.3
Empire	117 "	9650	5/3	29.0	8.2	9.4	10.5	4	7.3
Berthoud Falls Clear Creek	137 " 159 "	10500		52.4	18.3	17.7	18.0	2 2	
Average for		11200	12/4	67.3 49.6	23.1 15.9	26.8	25.6	2	13.9
SOUTH PLATTE RIVI	ER								
Hoosier Pass	14 Colo.	11400		40.3	12.2	17.7	16.7	17	11.7
Fairplay	15 "	10000		0.0	0.0	0.0	0.0	17	0.1
Jefferson Cr.	83 "	10100	4/30	32.2	8.6	11.9	11.8	13	7.5
Geneva Park	118 "		5/1	6.3	1.6	3.5	3.7	1 4	2.1
Antero	120 "	9200	4/30	0.0	0.0	1.1	0.0	1 4	0.3
Average for	drainage) A DIC: ATCA	15.8	4.5	6.8	6.4		4.4
ARKANSAS RIVLR		1	ARNA NSA	S RIVER					
Tennessee Pass	19 Colo.	10200	1,00	28.5	7 1.	72.7	77 Ω	17	6 2
Twin Lakes T.	21 "	10500		31.6	7.4	13.7	11.8	17	6.3
Whiskey Creek	72 "	10300	5/2	3.3	1.1	6.4	0.6	15	9.1
La Veta Pass*	74 "	9300	5/1	0.0	0.0	4.5	1.0	17	3.7
4-Mile Park	78 "		4/30	0.0	0.0	0.8	1.2	15	3.9
Fremont Pass	79 "	11400		55.6	17.4	23.0	27.7	17	18.1
Blue Lakes	81 "	10000	5/1	7.5	2.1	8.7	6.1	15	7.0
Monarch Pass	92 "	10500		53.4	18.3	28.9	21.7	12	19.3
Timberline	121 "	11100		68.5	25.6	22.1	21.3	4	21.5
Cooper Hill	165 "	10600		24.8	9.3	12.6		l	
East Fork	166 "	10700		33.6	9.8	13.4		1	no 40
Average for				27.6	8.8	13.3	11.4		10.3
			1	-, 50		1200		1	1

^{*}On adjacent drainage

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PLATTE-ARKANSAS RIVERS SNOW SURVEYS May 1, 1953

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Drainage Basin	No.	T72	Date	Snow	water	Content		1	Record
and	and	Elev.	of	Depth	3050	7.000	3053		AvoWater
Snow Course	State		Survey		1953	1952		Rec,	Content
	-	707170	270		In.	In.	In.		In.
COLORADO DETERDO	00	LORADO	- BIG	THOMPSO	N PROJI	7C.T.			
COLORADO RIVER**	1 - 0 -		1 /00	(0.0	07.0	00.0	~ ~		21 2
Cameron Pass*	1 Colo.	10300		60.0	21.8	29.2	26.5		24.2
Phantom Valley	12 "	9300	4/28	19.5	7.3	11.6	11.2	17	6.4
Lulu	59 "	10200	4/28	42.7	14.0	22.4	25.1	13	20.0
N.Inlet Grand L.	64 "		4/28	22.7	7.6	14.2	7.8	15	7.8
Lake Irene	00	10600		59.9	23.1	28.2	34.5	15	24.5
Grand Lake	127 "	8600	4/28	12.3	3.8	10.0	5.8	4	5.0
Average for Drai	nage			36.2	12.9	19.3	18.5		14.6
WILLOW CREEK						1	0 -		
Park View*	7 Colo.		4/30	21.9	6.6	11.4	8.9	17	7.4
Willow Creek	62 "	9500	5/1	32.4	8.3	20.6	14.8	15	13.5
Granby	1113 "	8700	5/3	10.3	2.2	5.2	3.0	4	3.0
Average for Drai	nage			21.5	5.7	12.4	8.9		8.0
FRAZER RIVER									
Berthoud Pass	16 Colo.	9700		47.3	12.0	21.9	20.8	17	15.3
Arrow	69 11	9900		25.4	5.9	13.0	11.5	15	7.8
Lapland	70 "	9500	5/2	33.0	9.5	12.8	12.8	15	9.0
Berthoud Summit	138 "	11300		70.0	23.7	27.3	19.7	2	
Frazer View	139 "	10600	5/3	45.7	12.9	15.7	13.4	2	
Average for Drai	nage			35.2	9.1	15.9	15.0		10.7
BLUE RIVER									
Hoosier Pass	14 Colo.	11400	4/30	40.3	12.2	17.7	16.7	17	11.7
Fremont Pass	79 "	11400	4/30	55.6	17.4	23.0	27.7	17	18.1
Shrine Pass	96 "	10500	4/30	53.2	19.9	22.0	25.5	11	18.9
Grizzly Peak	97 "	11250		62.8	20.7	26.8	27.7	111	20.3
Frisco	146 "		4/30	19.2	5.6	5.5	10.0	2	-
Snake River	147 "	9700		23.2	5.5	7.4	12.7	2	
Summit Ranch	158 "	10000		23.9	4.0	12.2	10.5	2	
Kokomo	167 "	10600		46.1	12.3	12.7		1	
Average for Drai	•			53.0	17.5	22.4	24.4		17.2
	3-								
*On adjacent drainage				1	1			F	

*On adjacent drainage

**Above Granby Reservoir

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LIST AND LOCATION OF SNOW COURSES

Platte, Arkansas, Colorado and Rio Grande Dreinages

No).	Name	Sec.	Twp.	Rge.	Elev.	No) •	Name	Sec.	Twp.	Rge.	Elev.
		Cheyenne							Upper Colorado			6	
1	SD	Upper Spearfish	21	3N	1E	6500	12	C	Phantom Valley	7	5N	75W	9300
							16	C	Berthoud Pass	35	28	75W	9700
	_	North Platte					37	C	M. F. Camp Ground	16	38	77W	9000
7	C	Park View	24	5N	78W	9200	44	C	Fiddler Gulch	1	88	8 0.N	11000
8	C	Columbine	21	5N	82W	9300	59	C	Lulu	25	6N	76W	10200
156	C	Northgate	7	11N	79W	8500	64	C	N. Inlet Grand Lake	26	4N	75W	9000
7	W	Bottle Creek	24	14N	85W	8200	65	C	Lake Irene	8	5N	75N	10600
8	W	Webber Spring Old Battle	27 29	14N 14N	85W	9000 9800	69	C	Arrow	34	18	7.5W	9970
37	W	North French Creek	29 27	14N 16N	85W		70	C	Lapland	16	2\$	76w	9500
38	M	North Barrett Creek	30	16N	80W 80W	10200 9 40 0	79 91	C	Fremont Pass	2	8S	75W	11400
39	M	Ryan Park	34	16N	81W	8400	96	C	Lynx Pass Shrine Fass	27	SM	86N	9100
67	ML	Spring Creek	32	15N	85W	9000	97	C		15 2	6S	797	10500
68	N	Albany	18	14N	78W	9400	102	C	Grizzly Feak Glen-Mar Ranch	31	5S 2S	76W 77W	11250 8850
71	W	Pearl	18	ISN	82W	8900	102	C	Nonarch Lake	30	2.7	74W	85,5
'-	"	10411	10	164	OLIV	0300	112	C	Granby	11	2N	77W	8700
		Laremie					127	c	Grand Lake	36	4N	75N	8600
88	C	Roach	5	10N	7'7W	9800	138	C	Berthoud Summit	10	2S	75N	11300
111	Č	"cIntyre	35	101	76W	9100	139	C	Frazer View	34	2S	75N	10600
3	19	Brooklyn Lake	11	16N	78W	10200	143	C	Gore Pass	2	1N	82W	8500
11	THE	Foxpark	21	13N	78W	9200	146	Ċ	Frisco	18	6S	78W	3330
35	W	Libby Lodge	29	16N	78W	8700	147	C	Snake River	9	58	76%	±700
6ء	W	Hairpin Turn	24	16N	79W	9 500	158	C	Summit Ranch	8	4S	78 N	10000
							163	C	Vail Pass	28	58	79W	10000
		Sweetwater					167	C	Kokomo	23	7S	79N	10600
29	31	Grannier Fracows	19	3JN	100W	9000	168	Ċ	rando	10	7S	8JW	3500
47	A	South Pass	13	30N	101W	9000		•	1 41140	10		0011	2000
57	1 V	Larson Creek	12	3UN	103W	9000			Roaring Fork				
							33	С	Ind. Pass Tunnel	30	11S	82W	10750
		Laramie Peaks Dist	rict				34	Ċ	North Lost Trail	20	113	87N	9200
วิษ	W	La Bonte	11	27N	74N	8450	45	C	Nast	1	98	83W	8700
70	W	Boxelder	31	SON	7.5W	9000	100	Ċ	Ivanhoe	12	9S	82W	10400
							144	C	Ruby	1	12S	83W	11500
		South Flatte											
1	C	Cameron Pass	2	6N	76W	10300			Yampa				
2	C	Chambers Lake	6	7 N	75W	9000	6	C	Dry Lake	26	7N	84W	8300
3	C	Big South	33	8N	75 W	8600	ý	C	Elk River	21	5N	82W	4300
5	C	East Portal	2 ·	2 S	74W	9400	140	C	Routt Line	13	5N	85W	5730
14	C	Hoosier Pass	13	88	78W	11400	141	C	Rabbit Ears	30	5N	83N	9550
15	C	Fairplay	33	УS	77W	10000	142	C	Yampa View	21	5N	84W	8500
41	C	Wild Basin	24	3N	74W	10000							
50	C	Deadman Hill	26	10N	75W	10200			White				
60	C	University Camp	26	1N	75W	10300	35	C	Burro Mountain	15	2 S	91W	9000
61	C	Loveland Pass	27	4S	76W	10600	36	C	Rio Blanco	28	lN	85N	8500
68	C	Hour Glass Lake	18	7N	73W	9500					•		
83	C	Jefferson Creek	14	7 S	76W	10100			Plateau Creek				
95	C	Hidden Valley	23	5N	75W	9550	δô	C	Mesa Lakes	35	118	96W	10000
115	C	Deer Ridge	19	5N	75W	9050	85	C	Trickle Divide	23	118	94W	10000
116	C	Copeiand Lake	21	3N	75W	8600							
117	C	Empire	21	38	7 5W	9650			Gunnison Kiver				
118	C	Geneva Park	18	6S	74W	9750	18	C	Crested Butte	22	138	86W	9000
120	C	Antero	1	138	7'/W	9200	46	C	Park Cone	19	148	82W	9700
128	C	Red Feather	26	10N	74W	9000	53	C	Alexander Lake	2	128	25W	10000
133	9	Moffatt	2	28	74W	9400	55	C	Snowshoe Mesa	14	138	89 W	7500
154	C	Ward	1	1N	75W	9500	58	C	Ironton Park	29	43N	7W	9800
137	C	Berthoud Falls	16	3S	75W	10500	87	C	Park Reservoir	34	118	94W	9500
148	C	Longs Peak	32	4N	75W	10500	89	C	Porphyry Creek	19	49N	6E	10800
156	C	Lost Lake	32	8N	75W	9300	101	C	Kannah Creek	5	12S	95W	10700 10300
34	C	Pole Mountain	35	15N	72W	8700	104	C	Lake City	13	45N	4W	
		Awronane Dimon					152	C	McClure Pass	1	118	89W	9500
19	С	Arkansas River Tennessee Pass	21	un.	N/AR	10200	155	C	Red Mountain	13	42N	RM	11000
21	C	Twin Lakes Tunnel	21 22	8S 11S	80W 82W	10200 10500			San Juan				
72	C		44	37.2N	105W	10300	29	C	Upper San Juan	10	37N	1E	10000
74	C	Wniskey Creek	22	28S		9300	30		Silverton	10	41N	7W	9400
78	C	La Veta Pass Four Mile Park	23	118	70W 81W	9700	31		Cascade	12	39N	9W	8850
81	C	Blue Lakes	30	318	69M	10000	155		La Plata	4	36N	11W	9700
92	C	Monarch Pass	16	49N	6E	10500	149		Spud Mountain	32	40N	SM TTM	10700
119	C	Saint Elmo	31	15S	80M	10600	150		Molas Lake	7	40N	7W	10500
121	C	Timberline	8	9S	81W	11100	151		Howardville	15	41N	7W	9800
165		Cooper Hill	2	88	80W	10600	152		Mineral Creek	35	42N	8W	10300
166		East Fork	9	88	79W	10700	100					-"	

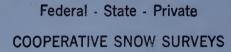
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LIST AND LOCATION OF SNOW COURSES (CONTINUED)

No.	Name	Sec.	Twp.	Rge.	Elev.	N	۰.	Name	Seo.	Twp	. Rge.	Elev.
	Dolores							Arizona (Williams)				
23 (Rico	11	39N	1.IW	8700	7	A	Iron Springs	22	14N	3W	6000
24 0		6	42N	8W	8600		Ā	Willow Ranch	16	21N	11W	5000
25 0		24	41N	10W	10300		•			2214	2211	0000
114		8	41N	9 W	9700			Arizona (Lower Col	ora do	١		
'	11 Out Dans	· ·		• "	0.00	9	A	Chalendar	27	Z2N	3E	7100
	Green					10	Ā	Grand Canyon	21	3ON	4E	7500
23 W		33	31N	104W	8700	11	Ā	Bright Angel	34	33N	4E	8400
24 W		17	35N	108W	8900		••	D. 25.0 12.602	٠.	OOM		0400
25 W	m	23	38N	110W	7900			Rio Grande				
26 W		14	37W	111W	8500	26	С	Wolf Creek	4	37N	2E	10000
27		15	29N	114W	8040	27	Ċ	Upper Rio Grande	13	40N	4W	9350
28 W		19	29N	114W	8820	47	Ċ	Silver Lakes	15	36N	5E	9600
20 1	Finey La Barge	13	2014	TTAM	0020	49	Ċ	River Springs	25	33N	6E	9800
	Arizona (Gila)					76	Ċ	Summitville	30	37N	4E	11500
11 NM		21	6S	20W	8000	77	c	Cumbres Pass	17	32N	5E	10000
14 NM		5	6S	21W	8000	80	C	Santa Maria	8	32N 41N	2W	9700
22 NM		20	10S	10W	7850	82	C	Culebra	۰		105.2W	10000
		20 6	118	107	7800	84	C	Fort Garland	3.77			
23 NM						108	C		13	29N	72W	8200
1 A		23	6N	30E	8500			Platoro	22	36N	4W	9950
2 A		13	4N	30E	8000	109	C	West Conejos	25	35N	4E	9450
3 A		26	5N	30E	8000	110	C	La · Manga	11	33N	5E	10000
29 A		15	128	16E	7300	122	C	Pyramid	26	41N	5W	10300
30 A	Bear Wallow	6	128	16E	8100	123	C	Spring Creek Pass	2	42N	3W	10900
						124	C	Pool Table Mt.	19	41N	2E	10000
	Arizona (Salt)					125	C	Lake Humphrey	32	40N	1E	9300
4 A		14	8N	23E	7200	126	C	Coohetopa Pass	12	45N	3E	10000
5 A		2	9N	21E	6000	154	C	Porcupine	2	41N	3W	10400
6 A		28	81/	23E	7000	155	C	Wolf Creek Summit	6	37N	2E	11000
20 A	Pacheta				7800							
21 A	Fort Apache	18	7N	27座	9000		NM	Red River	29	28N	15E	9500
22 A	Baldy	28	7N	27E	9000		NM	Taos Canyon	10	25N	15E	9000
23 A	Maverick Fork	13	6N	27E	9050		NM	Aspen Grove	12	18N	10E	9100
31 A	Workman Creek	33	6N	14E	5860	9	NM	Hematite Park	8	28N	15E	9 500
						12	NM	Tres Ritos	23	22N	13E	9000
	Arizona (Little (Colorado)				15	NM	Payrole	16	28N	7E	9700
12 A	Fort Valley	22	22N	6E	7350	17	NM	Chama Divide		36.9N	106.7W	7750
13 A	Mormon Lake	13	18N	8E	7350	18	NM	Chamita		36.9N	106.7W	8500
19 A	Mormon Mountain	14	18N	8E	7500	19	NM	Cordova	22	22N	13E	10100
						20	NM	Panohuela	27	19N	12E	. 8300
	Arizona (Verde)					21	NM	Big Tesuque	17	18N	11E	10000
8 A		3	16N	6 W	5700	24	NM	Elk Cabin	8	18N	11E	8250
16 A		29	19N	8E	7300	26	NM	Rio En Medio	8	18N	11E	10400
17 A		19	18N	8E	6930		NM	Quemazon	34	20N	5E	9300
18 A		7	18N	7E	6500	29		Bateman	5	26N	6E	9300
1		·				31		Fenton Hill	18	19N	3W	8900
						-						

SD - South Dakota; C - Colorado; W - Wyoming; A - Arizona; NM - New Mexico





Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"